

Sight loss and technology briefing

How blind and partially sighted people can bridge the digital divide



Developed in partnership

R N I B

See differently

Macular Society
Beating Macular Disease


Visionary

 **Guide Dogs**

 **Blind Veterans UK**
Rebuilding lives after sight loss

 **TAVIP**
Technology Association of Visually Impaired People

 **Glaucoma UK**

RETINA UK

 **TPT**
Thomas Pocklington Trust

Author: Emma Edwards, Senior Research and Data Analyst,
Research and Insight, RNIB. **Published September 2021**



Contents

- 3** Foreword:
Give better access to technology to boost independence
- 4** Executive summary
- 5** The role of technology
- 10** Technology in the UK today
- 17** The digital divide
- 21** An end to exclusion
- 24** The future of digital
- 26** References
- 28** Appendices

Foreword: Give better access to technology to boost independence

We need to increase blind and partially sighted people's access to technology, information, and digital services, particularly through digital channels. Digital enables blind and partially sighted people to live more independently, stay better connected and engage with the world, so it is essential more people can use it confidently.

But we need to overcome some significant barriers to increase digital take up. Blind and partially sighted people lag behind the rest of the UK in take up and will continue to do so, if we don't do more to support them.

This is unacceptable. Not only are the benefits of digital potentially even greater for people with sight loss, now so many essential goods and services are provided via a digital first strategy, there is a major risk of widening the digital exclusion gap. This is not just about internet access, but accessibility, participation and having the digital capability to thrive.

Everyone can benefit from using technology in their daily lives, but blind and partially sighted people benefit disproportionately.

People with sight loss have more to gain from using technology in everyday activities, such as reading, finding out information or accessing products and services. Technology is increasingly an imperative for people with sight loss, not a nice to have or an optional extra.

As part of our strategic partnership across the sight loss sector, we've created this briefing to illustrate the need to do more. Here you will find outlines of the role of technology and digital, current levels of take up, the digital divide faced by blind and partially sighted people and the evidence which will inform our approach to further research, and, ultimately, lead the future of digital for blind and partially sighted people in the UK.

Gary Brunskill

Chair, Access to Technology – Sector Working Group and Specialist Lead Assisitive Technology and Digital Inclusion, RNIB

Executive summary

1. People with sight loss are twice as likely to be digitally excluded when compared to the general population.
2. If current trends continue, over the next six years, nearly all people across the UK will be online, yet it will take an additional eight years before nearly all people with sight loss are online.
3. Blind and partially sighted people equipped with digital knowledge and skills could take advantage of the benefits of technology such as improved communication, access to information and access to services.
4. Effectively tackling barriers associated with the factors of age and knowledge is likely to reduce the divide and speed up the adoption of technology by blind and partially sighted people, but the role of both digital exclusion and digital capabilities must be considered as a sector wide strategy is developed.
5. To tackle digital exclusion effectively, we can segment blind and partially sighted people by their propensity of digital adoption to develop our understanding of the barriers and solutions.
6. Although, coronavirus has created many problems, lockdown has also given us opportunities to learn, particularly about any changes in people's willingness to adopt digital.
7. However, further research is required to better understand which audiences to target, how to reach them and how best to boost their knowledge of and opportunities to engage with digital.

The role of technology

Defining technology and digital inclusion

Developments in technology and digital's role in the modern world has resulted in an environment where digital skills are an indispensable part of modern living. Digital skills are increasingly important for connecting with others, accessing services and information and they are fundamental to functioning in the workplace.

Technology has different meanings in different contexts. Technology, in essence, is the application of any tool to complete a task. It will have been developed with the best scientific knowledge of the time. The cutting edge of technology in the modern world is represented by the new devices, software or capabilities of the infrastructure and products around us.

In the current context, being digitally capable and acquiring digital skills are key to being able to access the benefits of modern technology. These skills generally involve tasks involving the internet.

The Office for National Statistics considers the segment of the population who have not used the internet in the past three months to be digitally excluded (1). Those who use the internet more frequently than every three months are considered digitally included.

However, digital skills go hand in hand with internet use to enable the population to fully benefit from everything the digital world has to offer. Lloyds Bank's UK Consumer Digital Index defines seven core foundation tasks which are essential to being able to function online (2).



The role of both digital exclusion and digital capabilities must be considered when developing an engagement strategy around digital inclusion for blind and partially sighted people.

1. Digital exclusion, not using the internet.
2. Digital capabilities, the skills required to function in a digital world.

In the context of technology, it is also important to define what we mean by accessibility. Assistive technology is anything that makes something accessible to someone. It could simply be equipment, such as a magnifier. In the modern, technological world, assistive tech generally refers to add on products or software that make devices accessible. However, inbuilt assistive features also exist in mainstream devices that do the same thing, making them accessible.

We refer to both assistive features and assistive technology throughout this document.

Why technology is so important for people with sight loss

Benefits

Participation and inclusive design

Although there are certain challenges specific to sight loss to overcome, such as learning the accessibility functions of a smartphone or how to consume information on crowded, often inaccessible webpages, there are clear benefits. One obvious key benefit is personalised accessibility, which removes the format barrier of print information. The adaptability of digital information to the user's requirement puts the user in control. With technology now capable of adapting to needs so once set up, there is little conscious input from the user to make it accessible.

In addition, technology can be harnessed to build on traditional low-tech mobility aids to improve navigation and wayfinding, enabling more independent and flexible travel (3).

People need a level of confidence with digital life skills. It's key to be able to independently use an ATM to access cash, or interact with the digital interface at a GP's surgery to sign in, or print off tickets purchased online via self-service kiosks at the cinema. This is not just the role of the individual in honing those skills, but in society and the commercial sector to enable everyone to access these digital services.

In this sense, the role of technology and inclusive design for people with sight loss is not confined to just connected devices and online services. All developments in technology are

relevant to enabling blind and partially sighted people, particularly with accessibility in mind.

On one hand, there are great examples of accessible thinking. The Bank of England produces accessible bank notes, Microsoft produces accessible video game controllers. But, some developments in domestic products, such as washing machines, have reduced the ability of someone with sight loss to use devices independently. For example, modern dials on washing machines, or entirely touch screen operated devices, can exclude even the most digital capable individuals.

Activities

RNIB's Online Today programme was very successful at enabling blind and partially sighted people to build their digital skills (4). From a starting point of low digital skills (particularly in relation to assistive features or technology where prior skills had been lost due to sight loss), participants in the programme identified a range of benefits their new digital skills or use of technology had brought to their lives:

- Communicating with others and accessing information more easily
- Better management of health and wellbeing
- Increased independence, confidence and reduced reliance on others
- Access to leisure and entertainment: offering new opportunities for enjoying free time and the ability to pursue new hobbies
- Managing money and accessing money-saving deals

Blind and partially sighted people equipped with digital knowledge and skills can take advantage of these and wider benefits to enhance their inclusion in society.

Currently, blind and partially sighted people are less likely to use the internet for the full range of activities it can be used for, suggesting the potential benefits are not realised (5). The digital divide isn't only influencing lower rates of internet take up, but also affects those already online who are using the internet less often and for a narrower range of activities.

Of those who use the internet, 58 per cent use it for access to information, compared to 73 per cent in the general population, and 39 per cent use it for banking, compared to 61 per cent in the general population. The full breakdown of activities is in the table below (5). Given the increasing reach of connected devices, it may be appropriate to frame future research around those devices rather than the internet which is becoming a less relevant term. Without adjustment, this may influence results if people do not identify, for example, watching TV with using the "internet".

Table: Internet use activities: proportions for blind and partially sighted people compared to the general population

Activity	Blind and partially sighted proportion (%)	General population proportion (%)
Communicating	83%	92%
Information	58%	73%
Shopping	40%	60%
Banking	39%	61%
Access public services	27%	43%
Downloading / streaming	28%	46%
Gaming	22%	24%

Employment

Digital skills are also important in the workplace. Forecasts suggest that digital skills will become increasingly important with most jobs (90 per cent) requiring a work ready digital skillset (6). With a lower employment rate among blind and partially sighted people, the employability factor of boosting digital skills is a definite benefit (7). Current findings suggest that 48 per cent of those in the overall working population have essential digital skills compared to 40 per cent of those with a sensory impairment (2).

The perception amongst employers that people with sight loss cannot operate devices, such as a computer, may contribute to barriers for people with sight loss entering the workplace. Research with employers found that a third thought someone with sight loss may not be able to operate a computer/laptop (8).

Lockdown and technology

A section on the benefits of digital to people with sight loss wouldn't be complete without reflecting on our recent experience of the coronavirus pandemic and lockdown.

During the lockdown, RNIB asked blind and partially sighted people about their experiences of using technology (9). 92 per cent of people with sight loss surveyed, most of whom were of working age, found technology to be beneficial when staying at home during lockdown.

When asked about the technology that helps them the most, half of people with sight loss said mainstream tech is used the most. Only six per cent relied most on specialist technology for people with a visual impairment, such as JAWS, with the remainder relying on a mix of both.

In fact, some focus group participants viewed technology as a "saviour" during lockdown, enabling them to do more and connect more with others while they were staying at home.

It was clear that blind and partially sighted people with digital skills were better equipped to cope during lockdown.

In addition, early findings from a sector wide research project – due to be published in 2021 – support the view that people with sight loss who are most adapted to live independent, fulfilled lives are those who have embraced technology the most(10).

Furthermore, there has been recognition from corporates and the Government that boosting the nation's digital capability is more important now than ever before, with the launch of the Government's online learning platform and support from corporate providers of free online training resources(11, 12).



Technology in the UK today

Digital inclusion and exclusion

Age is a key factor in digital uptake for the general population and for people with sight loss. Here, digital is referring only to internet use, not digital skills.

In terms of inclusion, 41 per cent of people with sight loss use the internet every day, which increases to 63 per cent after controlling for age. This compares to a rate of 76 per cent in the general population (13).

The number of adults who don't have access to the internet, have either never used the internet or have not



used it in the last three months, described as “internet non-users” or the digitally excluded, has been declining over recent years.

Since 2011, this number has almost halved. But in 2018 there were still 5.3 million adults, 10 per cent of the UK adult population, in this situation (1). The proportion is higher for people with sight loss, even after controlling for age, at around 19 per cent (13). Without controlling for age, roughly 38 per cent of the total population with sight loss have never used the internet or have no internet access.

This is strongly linked to age. The numbers of people aged 18-49 who don't use the internet are extremely small, and people with sight loss in this age group appear to be just as likely to use the internet as people in the general population. Older people are much more likely to not use the internet, with 63 per cent of people with sight loss aged 75 plus not using or having access to the internet (compared to a UK average of 52 per cent for the same age group).

There is a clear gap in internet use between people with sight loss and the general population that is influenced by factors other than age alone. Potential reasons for this difference are discussed in section 4 – the digital divide.

Most digital exclusion falls in certain groups. It is concentrated in the 75 year and over age group and exclusion remains considerably higher for

disabled adults. In 2018, the proportion of disabled adults not using the internet was 23 per cent, compared with only six per cent of those without a disability, or a UK average of 10 per cent (1). Among those of working age, the “economically inactive due to long term sick leave or disability” are the most likely to be internet non-users at 22 per cent.

Of all people who are digitally excluded at a national level, the main reason or barrier was a lack of need, use or interest in the internet, cited by 64 per cent of internet non-users (1).

Looking at recent trends, Ofcom household level data suggests a stall in the growth of household internet take up (5). Internet take-up was 87 per cent in 2019, unchanged from 2018 with an increase of just two percentage points in the past four years. However, more recent data from early 2021 does indicate an upswing in internet use and take up, largely influenced by the coronavirus pandemic increasing demand for home internet access (25).

Considering strategies to increase digital inclusion moving forward, Government research for the 2014 Digital Strategy suggests that – as the numbers remaining offline dwindle – the groups left become increasingly difficult to support. They estimate that “between 3.5 to 4 million people (seven per cent to eight per cent of the adult population) may never have basic digital capabilities.” (14) The Government has made a commitment that offline assistance will always be there for those who need it.

Digital skills

While using the internet is important to engage with the digital world, digital skills are ever important in being able to take advantage of new technologies. Users must be digitally capable to reap the benefits that make technology purchase worthwhile.

Lloyds Bank’s UK Digital Consumer Index defines seven core foundation tasks which are essential to being able to function online (2). These are “the seven fundamental tasks that everyone must be able to do by themselves in order to start using the Internet and technology effectively.”

The tasks include: using menu settings; connecting to Wi-Fi; changing a password; opening programmes; turning on a device and logging in; opening a browser; and using controls, such as a keyboard (2).

An estimated 45.5 million people, 84 per cent of the UK can do all seven Foundation tasks and are indicating that at a basic level, they are able to participate in a digital society. People with a sensory impairment (visual or hearing) are considerably behind the average at 56 per cent (2).

Lloyds Bank estimates that in 2020, 16 per cent of UK adults, or nine million people, do not have the digital foundation skills to use the internet and their device by themselves, although they may be considered internet users and not part of the digitally excluded group (2). For people with a sensory impairment, this proportion is almost three times as high at 44 per cent.

One key factor in obtaining digital skills to complete foundation tasks that is specific to blind and partially sighted people is accessibility, using assistive features or technology. Accessibility is sometimes built into devices or software can be purchased separately. If a blind or partially sighted person requires assistive features or tech to access the internet or carry out digital tasks, they require specific knowledge of the technology and access to it.

The foundation tasks used to measure digital skills by Lloyds do not include some skills that could be viewed as essential enablers of independence for people with sight loss. For example, a working knowledge of chosen assistive technology or built-in accessibility features is fundamental to successful progression in all digital tasks. It could be added to a revised foundation task list for people with a vision impairment. Another essential skill could be wayfinding with the support of digital tools. The revised list of foundation tasks for people with a vision impairment would encompass skills that are of real value to individuals in how they use them to create opportunities and enable independence.

Measures to increase skill levels, knowledge of and access to assistive features or technology will be very important to enabling better digital inclusion and development of digital skills for blind and partially sighted people across the UK.

Market share

Smartphones

Smartphone device take-up stands at 79 per cent for UK adults, an increase of 13 per cent since 2015 (15). Smartphones have become the most commonly used device for accessing the internet and using services, from messaging to online shopping (16).

The sharp increase could be due to the technological advancements made in the last decade. Smartphones now have a variety of features and apps that can assist in everyday life. For those with disabilities, smartphones are particularly useful due to inbuilt assistive features.

The most significant growth in recent years can be seen among individuals aged 55-64, where ownership levels were 70 per cent by the beginning of 2020. This is an increase of a fifth (20 per cent) since 2015 (16).

Overall, 46 per cent of people with sight loss had a smartphone. This is considerably lower than the UK average, but that difference is strongly linked to the age profiles of the different populations (13). However, people with sight loss aged 75 and over were just as likely to own a smartphone compared to the UK average.

The largest gap to the UK average was amongst people with sight loss aged 18-74 years – the proportion of smartphone ownership for this group was 12 per cent lower than the UK average (13).

After controlling for age, 69 per cent of people with sight loss own a smart phone compared to 78 per cent in the general population (13).

Tablets

41 per cent of people with sight loss owned a tablet device (mobile computing excluding laptops and PCs), compared to a UK average of 60 per cent. There was considerable variation between age bands, with younger people much more likely to own these devices. People with sight loss aged 75 plus were only slightly less likely to own a tablet compared to the UK average for the same age band, 27 per cent compared to 33 per cent (13).

After controlling for age, people with sight loss were only slightly less likely to own a tablet device compared to the UK average (54 per cent cf. 60 per cent).

Other smart devices

Although smartphones are the most common form of technology, they are not the only smart product.

The market for smart speakers has grown significantly over the past few years, though they remain a relatively niche product. Research shows those aged under 55 are significantly more likely to own niche devices such as Voice Activated Speakers. Around a quarter of their households own one.

In 2019, a fifth (20 per cent) of all UK households owned a voice activated speaker (17). Research suggests this market is dominated by Amazon holding roughly a 75 per cent share, though Google devices are increasing their share

(18). As a relatively new addition to the tech landscape, no data is available yet on uptake by blind and partially sighted people. Further information on the brand, cost and functions of smart speakers are in the appendix.

Other devices

The take up of most tech devices is consistently lower for blind and partially sighted people.

Research by Ofcom has found that people with a visual impairment are less likely than non-disabled people to personally use a computer (PC, laptop or tablet) than the general population (53 per cent compared to 77 per cent). They are also less likely to use a games console (12 per cent compared to 24 per cent). The only device that was used at a higher rate than the general population was more basic mobile phones that do not connect to the internet (25 per cent compared to 18 per cent), likely indicating the older age demographic of the people surveyed (5).

People with a visual impairment are most likely to say that their use of TVs is either limited or completely prevented due to their condition. A third said their use of TV was limited or prevented, while 18 per cent said the same for computers (PC, laptop or tablet) (5).

Across linear television services, traditional broadcast TV, broadcasters are required to offer audio description on at least 10 per cent of their content, with some broadcasters achieving a much higher proportion. On average, more than a quarter of the content is delivered with Audio Description (AD) on UK television annually (19).

Non-linear on demand video streaming services growing in popularity across the UK with research suggesting the largest share is held by Netflix, with 44 per cent of UK adults using this service (20). 41 per cent use YouTube and BBC iPlayer and a quarter use Prime Video.

There is currently no requirement for AD on non-linear services, though consultations are underway (as of 2020) and legislation will be introduced soon. Ofcom carried out research in 2019 finding, that between January and July 2019, 40 per cent of on-demand programming did not offer any accessibility provision at all (including subtitles), with 82 per cent not offering audio description on a single programme (17).

Social websites

We can compare the use of social websites by people with sight loss to the general population. Uses of social media include business or personal reasons, dating or chatting or interacting with other people online.

32 per cent of people with sight loss were members of a social website. This was strongly linked to age, with 81 per cent of people aged 18-49 using social websites and only 11 per cent of people aged 75 plus being a member of such platforms (13).

For both the youngest and oldest age groups, people with sight loss had a similar membership of social websites compared to the UK average for people of the same age. However, the largest gap was for the 50-74 age group. This age band also had the largest comparative gap for using the internet every day, owning a smartphone or tablet device.



After controlling for age, people with sight loss were slightly less likely to be members of a social website when compared to the UK average at 53 per cent compared to 59 per cent (13).

Assistive features and technology

Computer screen readers

Screen readers are assistive features or software most commonly used by people with a visual impairment to access devices using speech feedback, though people with other disabilities may also use them.

WebAIM is a provider of web accessibility solutions and has published results from a large-scale survey of screen reader users. Though the survey was worldwide with most responses from North America and a quarter from Europe, the findings offer useful insights for the UK screen reader market (21). It is also important to note the sample will represent people with good digital skills and is not likely to include those with low, or no, skills.

WebAim's survey of screen reader users found that the majority of screen reader users were visually impaired, though a small proportion had other or additional disabilities. Further information on the additional disabilities is in Appendix 2.

When looking at the different functions of screen readers, 79 per cent of visually impaired respondents said they relied exclusively on the screen reader audio. The remainder also use visual content with a small proportion relying mainly on visual content or on braille output.

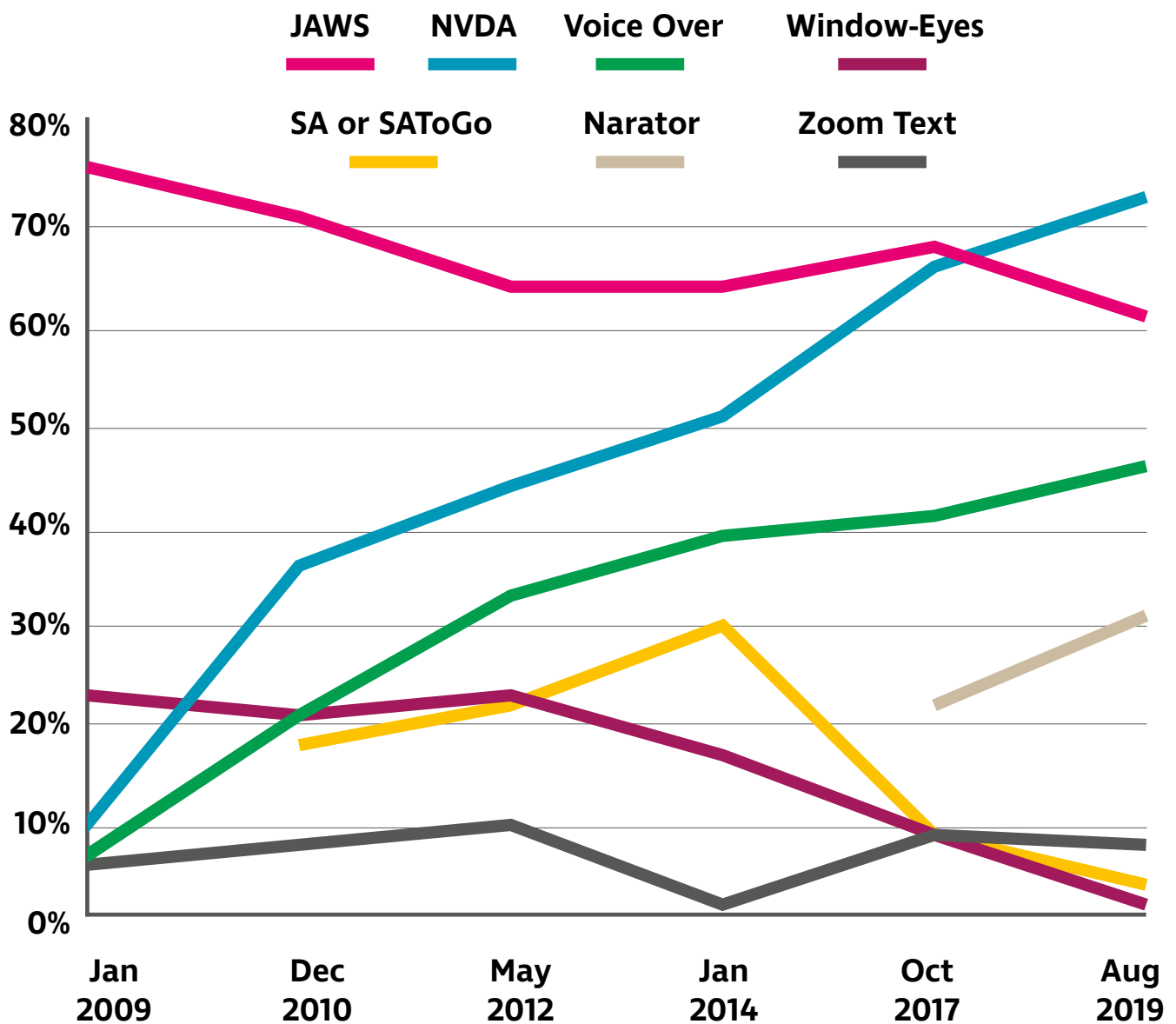
In the current tech market, there are several different types of screen readers available for use with computers, all of which are compatible with multiple devices and software. However, the top spaces are occupied by NVDA (72 per cent), JAWS (62 per cent), VoiceOver (41 per cent) and Narrator (30 per cent).

Although JAWS is the oldest screen reader available on the market, it is no longer the primary screen reader technology, showing a slow decline in usage since 2009.

This is likely due to the availability of alternative options. The newer inbuilt features look set to replace more traditional screen reader options, such as JAWS. However, the persistence of high cost, bolt on assistive technology being used particularly for computer/laptop devices, despite the availability of free alternatives, suggests users have a reliance on technology they know. This is likely to preserve the popularity of these options until transition to the alternatives cannot be ignored.

The fact that products such as NVDA, VoiceOver and TalkBack are free and can even be pre-installed on devices is likely a key reason for their growing popularity, thus transforming areas such as education and employment for blind and visually impaired individuals. In the UK, JAWS costs more than £700 for a home version and £945 for professional (22).

Graph: Screen reader usage trends 2009 to 2019, WebAIM



Mobile phone screen readers

WebAIM also surveyed mobile phone screen reader preferences. Results showed that people with a visual impairment use screen readers most commonly on their mobile phones, followed closely by laptops, then desktops (21).

The most commonly used screen readers for mobiles is VoiceOver (71 per cent) and TalkBack for Android (33 per cent). Respondents with

disabilities used iOS devices at a higher rate than those without disabilities, this could largely be due to the fact that VoiceOver is built to the all Apple products. IOS continues to lead the mobile screen reader market, with Android usage only picking up in the last few years.

Safari on iOS is by far the most common mobile browser although the usage of Chrome has slowly increased over time.

The digital divide

Digital engagement is more important now than ever before, however there are difficulties and barriers that prevent some from making the most of technology.

The UK Government's Digital Strategy aims to increase the digital capability of the population with a focus on groups that are disproportionately affected by the digital divide. People with disabilities are identified as one of the core groups with significantly lower digital take up, along with older age groups and people on low incomes.

The key barriers to technology take up identified by blind and partially sighted people through the Online Today evaluation were (4):

- Knowledge, confidence and ability to use technology
- Cost of connection, devices and assistive technology
- Concern about safety and the ability to stay protected online
- Inaccessible websites and apps
- Availability, accessibility and expertise of mainstream technology providers

Age, sight loss and technology

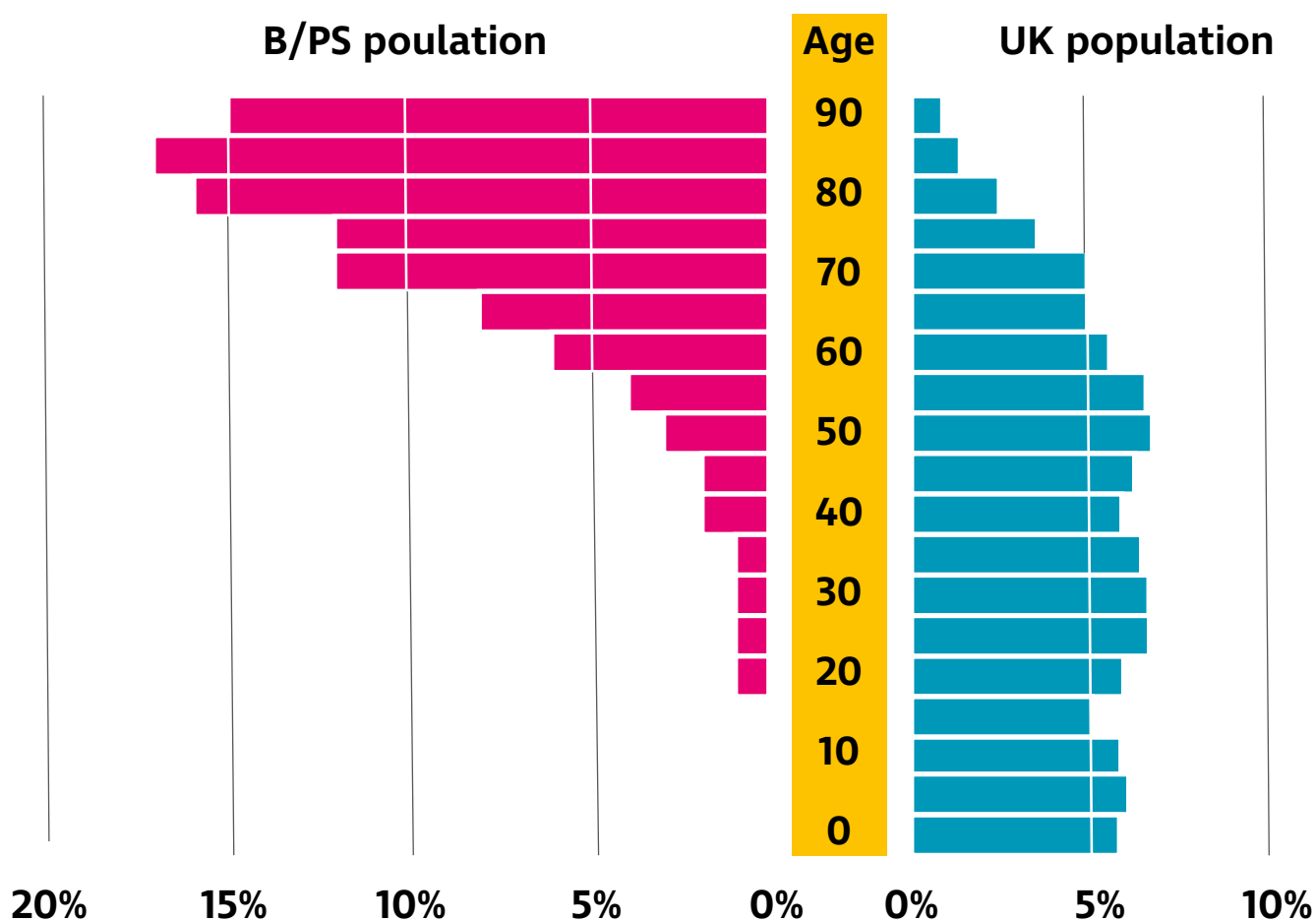
The most significant factor fuelling the digital divide is the greater prevalence of sight loss amongst older people, coupled with the lower technology take up in older age groups.

Data suggests that age plays a key role in digital engagement with 24 per cent of adults aged 65 and over not using the internet in the last three months (23).

The population pyramid below compares the proportion of people with sight loss by five-year age group to the UK general population. The UK population is more evenly distributed across the age groups, tailing off after the 70 and over age category; the majority of people with sight loss are in the 70 and over group. Around 70 per cent of people with sight loss are aged 70 and over, compared to just 14 per cent in the general population.

With technology take up lower amongst older age groups, this raises important questions about how best to encourage take up for a large proportion of people living with sight loss.

Graph: population pyramid comparing the proportion of blind and partially sighted people to the UK general population, by five year age group



Knowledge and accessibility

A lack of knowledge about technology and the assistive features or technology options available was identified as a significant barrier by blind and partially sighted people during the Online Today project (4).

Knowledge about assistive features or technology is a barrier specific to blind and partially sighted people, along with the barriers of inaccessible websites and software. The digital skills required by a blind or partially sighted person are different to those who do not require any accessibility support which also increases the learning

required for blind and partially sighted people to develop their own digital capability. An additional layer to this is that customers find it most beneficial to learn new tech from peers who also have sight loss, which limits their ability to learn in other ways which may be more common in the general population, for example through family members.

It is possible that the additional influence of these factors has caused the lower internet take up in the blind and partially sighted population, even if we ignore the influence of age.

RNIB's evaluation of the Online Today

programme suggests that, for those with sensory impairments, learning about assistive features or technology and developing the skills to use these devices was a key motivator for participants (68 per cent) (4). This indicates that the motivation to learn new forms of technology is linked to level of requirement on the individual's part. This is supported by other research findings; the main barrier to digital uptake is a lack of need, use or interest in the internet, cited by 64 per cent of internet non-users in the general population (1).

Websites

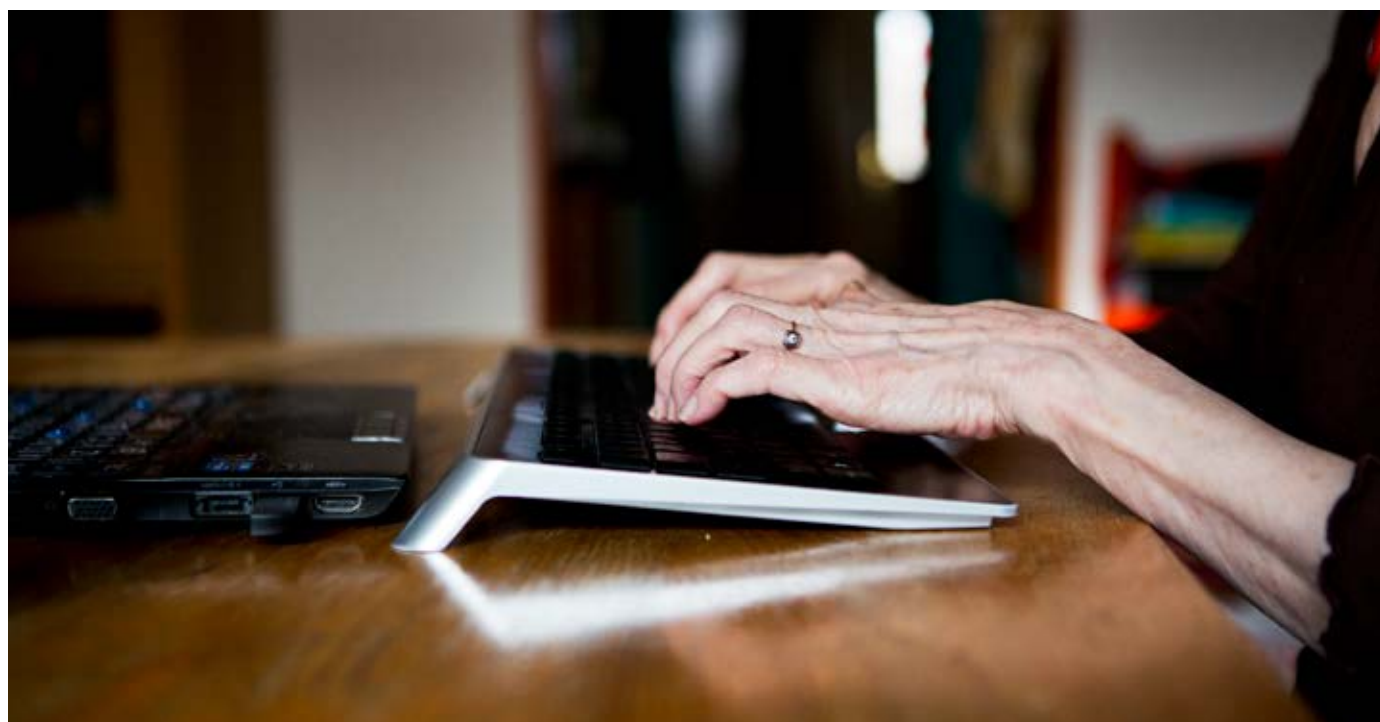
Being online inevitably means interacting with websites, software and apps that have been designed largely for visual users, not users who navigate with assistive features or technology.

All websites should be accessible but, in fact, hardly any websites are designed with accessibility in mind.

WebAIM has conducted an accessibility evaluation of the home pages of the top one million websites worldwide and more than 100,000 interior site pages. It was possible through running automated accessibility tests on page content. The shocking findings from the 2020 evaluation are that 98 per cent of pages had a detectable WCAG 2 (Web Content Accessibility Guidelines 2) conformance failures (24).

It reported an average of 61 errors per page and home page complexity seems to have increased since the 2019 evaluation. Users with disabilities would expect to encounter detectable errors on one in every 14 home page elements. Most errors were due to low contrast, missing alternative text, missing links and missing form input labels (24).

This level of difficulty engaging online is a barrier specific to blind and partially sighted people and may be a significant factor influencing the low digital uptake.



Cost

The cost of connection and devices is another potential barrier to the use of technology. Between broadband prices and device prices, more than half (53 per cent) of the offline population said they don't have the monthly disposable income available for them (2).

Research indicates blind and partially sighted people have greater financial pressures than the UK average (13). Cost was specifically discussed as a key barrier to tech take up during the Online Today project and the additional cost of some assistive technologies (i.e. JAWS costs more than £700) only enhances this barrier to technology access for blind and partially sighted people (4).



Apple products clearly emerged as the preference for screen reader users in WebAIM's survey, particularly in mobile devices, and are generally viewed as the easiest to use. Yet, they are high end products with high end price tags, which, for some, could make them unattainable.

In addition, users need to upgrade their tech every couple of years. Manufacturer updates continually require more processing power for the devices to run so they need to be upgraded. While accessibility features remain, they aren't usable. This is a particular issue with iPhones and limits users with sight loss from holding onto devices and excludes them from the cheaper second hand device market.

Security online

Aside from cost and motivation, there have been growing concerns over privacy and security. 24 per cent of the UK population want more transparency regarding the data organisations hold on them and how they're using it. A quarter (25 per cent) said they want more control over how their data is being used (2). In terms of privacy, almost two thirds (63 per cent) of the general population is concerned about their online privacy (20).

Concern about staying safe online and confidently protecting personal information when online has been found to be a persistent barrier to technology take up for blind and partially sighted people (4).

An end to exclusion

Understanding future trends in digital exclusion is dependent on unknown variables, including the future speed of take up. Trends over the past eight years can be used to project future trends, assuming take up levels remain consistent. Though, this is no small assumption. The Government Digital Inclusion Strategy recognises that some people will never be online and take up will slow in pace as fewer remain offline, yet there is an absence of evidence to suggest what this will look like (14).

Hence, these forecasts will be most useful looking at the drop in exclusion to the cut off of one per cent of the population. This acknowledges that some residual exclusion may be unavoidable while allowing us to look at the difference in trends between blind and partially sighted people and the UK average.

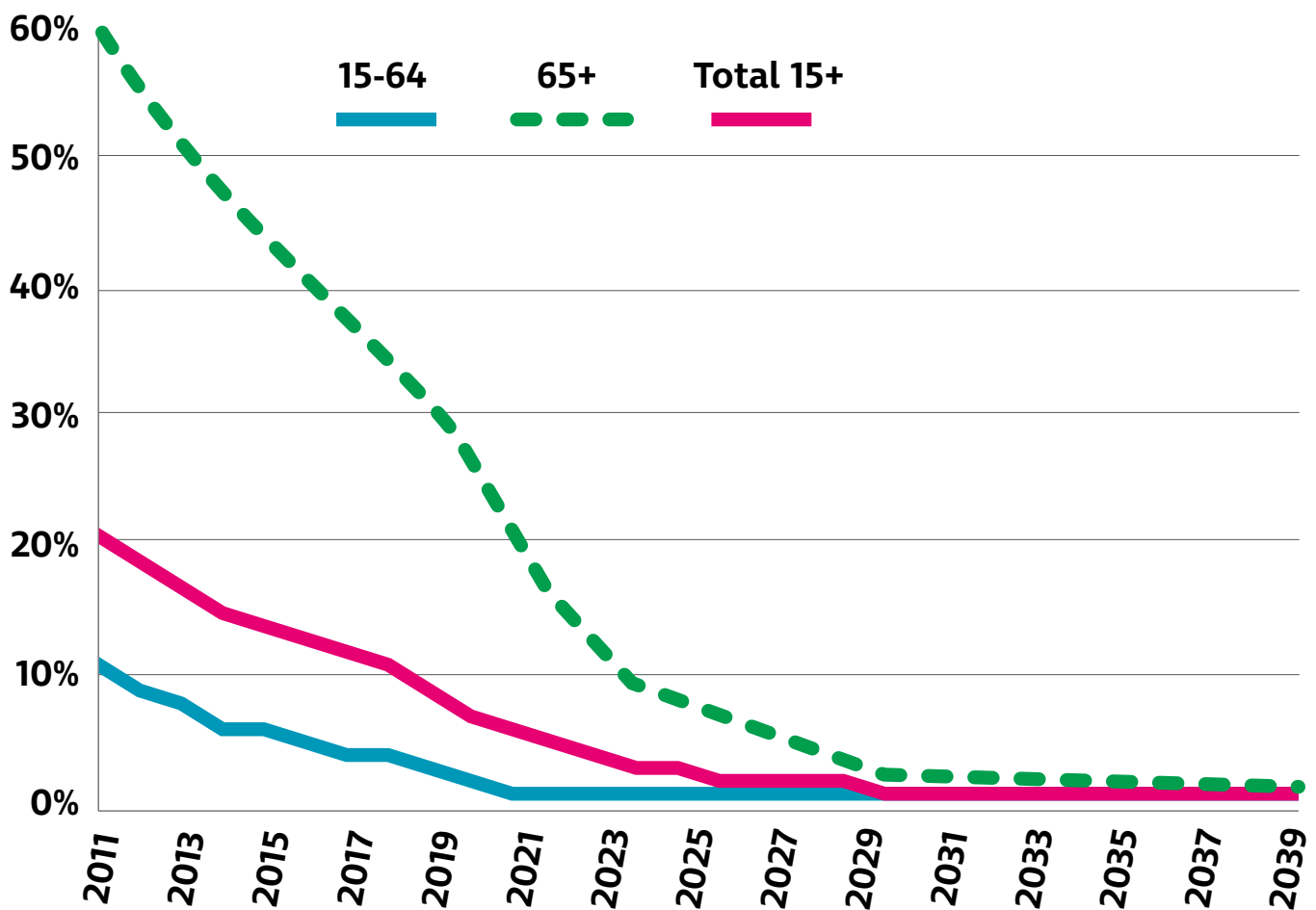
The data used is taken from the ONS Opinions and Lifestyle survey for prevalence by age group and has been graduated to match the future population to their previous take up levels.

Forecast for the general population

In 2011, roughly 20 per cent of the general population were internet non-users which decreased to 10 per cent in 2018. If current trends were to continue, we can forecast that by 2026, this would drop to one per cent.

There is a clear age divide in internet take up that can be viewed in the chart below. In 2018, just three per cent of 15 to 64 year olds were internet non-users. In 2020, this should have decreased to just one per cent. However, in 2018, a third (34 per cent) of those aged 65 years and over were internet non-users. If current levels of take up continue as the UK population ages, by 2031 this is forecast to reduce to roughly one per cent of the 65 years and over age group being internet non-users.

Chart: Projected proportion of internet non-users in the UK, by broad age group and average



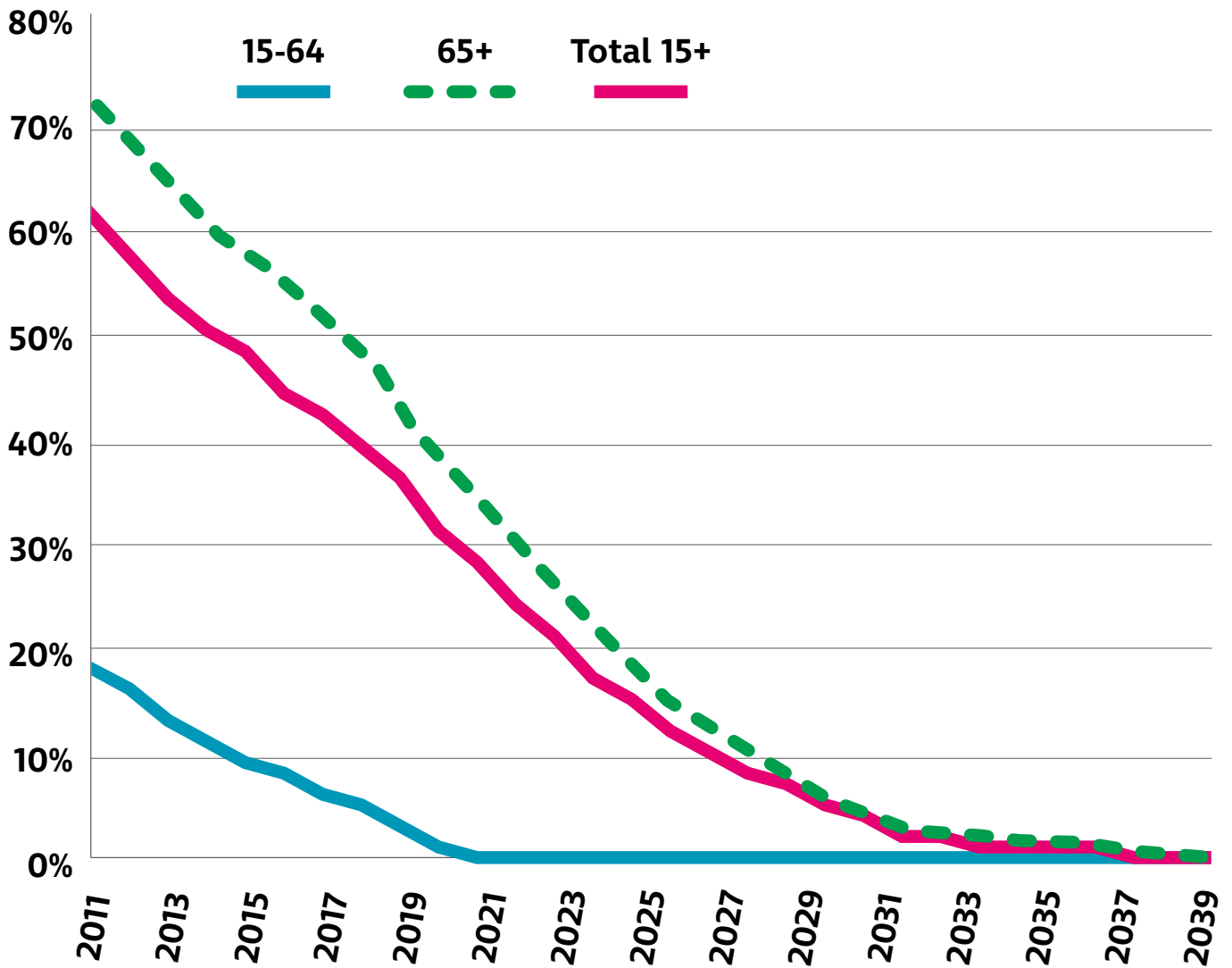
Forecast for blind and partially sighted people

These trends can be applied to the population living with sight loss, using the difference in internet take up from the Understanding Society survey as a guide.

Internet non-use is slightly higher in the population with sight loss when compared to the general population, even after age is accounted for. However, the projection for people aged 15 to 64 years with sight loss found internet non-use to be similar to the general population, mirroring the prediction that by 2020 only one per cent of this group will be internet non-users.

The older age profile of the cohort living with sight loss pulls the average internet non-user proportion for this group much higher than the average trends in the general population. At 2018, 39 per cent of people living with sight loss are estimated to be internet non-users. If take up amongst the older age group were to remain behind the average, it would take until 2035 before just one per cent of those aged 65 and over with sight loss were internet non-users. The age profile for the sight loss cohort suggests it will be 2034 before just one per cent across all ages are internet non-users.

Chart: Projected proportion of internet non-users with sight loss, by broad age group and average



The future of digital

Blind and partially sighted people should have the same opportunity to benefit from digital and new technology as the general population. But the evidence suggests that there is a digital divide and this is forecast to continue well into the next decade.

Two of the key factors driving the digital divide affecting blind and partially sighted people are:

- Age.
- Issues relating to accessibility, including knowledge, skills and cost.

These don't just affect basic exclusion in non-internet users, but they affect digital capabilities and independent use of the internet, which is key to developing digital capabilities to access the widest benefits from technology.

Effectively tackling barriers associated with the factors of age and accessibility is likely to reduce the divide and speed up the adoption of technology by blind and partially sighted people.

This section sets out some important evidence to inform a unified approach to influencing the future of digital take up by blind and partially sighted people and poses future research options.

Groups

The barriers to digital take up will affect groups in different ways. The UK Government Digital Inclusion Scale (DIS) is commonly used to understand and encourage take up across different public services (14).

The nine-point scale segments the population across nine groups by propensity of digital adoption. The groups are as follows:

1. Never have, never will
2. Was online, but no longer
3. Willing and unable
4. Reluctantly online
5. Learning the ropes
6. Task specific
7. Basic digital skills
8. Confident
9. Expert

People with sight loss will exist across all points on this scale. To increase digital adoption, skill levels of those in segments below task specific skills, 1 to 5, need to rise. Raising the skill level of those already using digital for specific tasks up to a confident skill level would require focus on segments 6 and 7.

The five segments with the lowest skill level have been grouped into three customer segments below. These represent groups with different needs and where different methods of engagement will be required.

- Older people who have never been online independently and do not see why it is relevant to them (DIS segment 1).
- Older and working age people who lost prior digital skills when they lost their sight (DIS segments 2 and 3)
- Older and working age people with low digital skills, unable to complete all basic digital skills independently (DIS segments 4 and 5).

.....

Enabling learning and building knowledge

Interviews with beneficiaries from our Online Today evaluation show that learning about assistive features or technology and developing skills and knowledge to use devices were key motivators for their participation in the programme.

Findings suggest that digital progression can be encouraged through the following (4):

- Activity tailored to the needs of the individual
- Opportunities to try devices and use assistive features or technology
- Ongoing learning with space and time to experiment to gain knowledge and confidence
- Self-directed learning
- Being trained or supported by other people with sight loss

Further evidence is required to understand the detail of how best to apply these learnings to reach and encourage digital adoption in the different segments.

.....

Future research

This briefing has set out the evidence base around sight loss and technology at the time of writing. It is important to undertake further research to expand this evidence and to identify and fill evidence gaps.

Future research could include developing our understanding of the benefits of technology for those already using it and how this can be replicated in groups not yet benefiting from all technology has to offer. It could also include work with commercial organisations to understand opportunities, take up and customer experience. A focus on different settings would broaden understanding of the importance of technology in the workplace, in the home or on the go. This year, we can take a closer look at the impact of coronavirus on technology adoption and whether there is an increased willingness that can be harnessed to further boost digital uptake.

Continuing to develop and expand our knowledge around sight loss and technology will help us better understand which audiences to target, how to reach them and how best to boost skills, knowledge and opportunities to engage with digital.



References

1. ONS (2019a) Exploring the UK's digital divide (<https://bit.ly/3yXOFp2>)
2. Lloyds Bank (2020) Lloyds Bank UK Consumer Digital Index 2020 (<https://bit.ly/2UPEPHb>)
3. Microsoft (2020) Understanding In-Situ Use of Commonly Available Navigation Technologies by People with Visual Impairments (<https://bit.ly/3xI7rAC>)
4. RNIB (2018) Online Today: Final Evaluation
5. Ofcom (2019) Disabled users access to and use of communication devices and services (<https://bit.ly/2UOEe8o>)
6. Skills Fund Agency (2016) Review of publicly funded digital skills qualifications (<https://bit.ly/3eF1vB5>)
7. RNIB (2020) Employment Facts and stats. [https://www.rnib.org.uk/sites/default/files/Employment_facts_and_stats_2020 – External version.docx](https://www.rnib.org.uk/sites/default/files/Employment_facts_and_stats_2020_-_External_version.docx)
8. RNIB (2019) Employment for blind and partially sighted people in 2019. [https://www.rnib.org.uk/sites/default/files/Employment for blind and partially sighted people in 2019 – External version.docx](https://www.rnib.org.uk/sites/default/files/Employment_for_blind_and_partially_sighted_people_in_2019_-_External_version.docx)

9. RNIB (2020b) Coronavirus: Living with sight loss through lockdown. https://www.rnib.org.uk/sites/default/files/Final_external_report-Living_with_Sight_Loss_through_Lockdown.docx
10. Sight loss sector (2021) VI Portraits (currently unpublished). Guide Dogs, RNIB, Thomas Pocklington Trust.
11. Department for Education (2020) The Skills Toolkit news article (<https://bit.ly/3elGQBO>)
12. Lloyds Bank (2020b) Locked out before lockdown: 9 million people struggled to get online (<https://bit.ly/3hGp6TB>)
13. Understanding Society (2020), Comparing the circumstances of people with sight loss to the UK population, Wave 8 2019
14. Government Digital Service (2014) Government Digital Inclusion Strategy (<https://bit.ly/3xLIXGO>)
15. Ofcom (2019) Communications Market Report 2019 (<https://bit.ly/36CaD4L>)
16. Statista (2020) Most important device used to connect to the internet (paywall) (<https://bit.ly/3hIEoYe>)
17. Ofcom Access Services (2019) Television and on-demand programme services: Access services report – January to July 2019 (<https://bit.ly/3emgm2R>)
18. Wavemaker UK (2020) Emerging Tech: The Future is Voice
19. RNIB (2012) AD on TV RNIB Policy Paper
20. Ipsos MORI (2019) Technology tracker. (<https://bit.ly/3B5QUbD>)
21. WebAIM (2019) Screen Reader User Survey #8 (<https://bit.ly/3knL5R4>)
22. Ability Net, (2019) An introduction to screen readers (<https://bit.ly/2TaLY4a>)
23. ONS (2019b) Internet access: households and individuals. (<https://bit.ly/36Ax7TF>)
24. WebAIM (2020) WebAIM Accessibility Evaluation (<https://bit.ly/3B4JPZ5>)
25. Lloyds Banks (2021) UK Consumer Digital Index 2021 (<https://bit.ly/2UcJ6Ex>)

Appendices

Appendix 1

Smart speakers

Research shows those aged 35-54 are significantly more likely to own niche devices such as Voice Activated Speakers with 14 per cent of the UK population overall owning a voice activated speaker (20). Released in 2016 the Amazon Echo, now in its fourth generation (£89.99, Amazon), soon became one of most popular smart speakers for UK households. According to a survey conducted by Statista, 78 per cent of respondents owned a Amazon Echo (16).

The Amazon Echo Dot is also in its fourth generation and is available (£49.99, Amazon), with older generation models also available.

The Amazon Echo works well with other Amazon services such as Amazon Audible and Amazon shop, thus allowing people to access a wider range of services. Users mainly use these devices to: play music, get travel and weather updates, set timers/alarms, and check the latest news. However, it also contains handy features like Alexa Guard which acts as a pair of ears by listening for danger sounds such as breaking glass and smoke detectors then notifies you of what it hears.

The Echo was followed closely by the Google Assistant, in 2017 (£89.00, John Lewis). Although the functions of a Google Assistant closely mimic that of an Echo, the overall compatibility levels are less than that of the Echo. When it comes to answering specific question, Google Assistant not only makes more attempts to respond to questions but also answers specific questions accurately.

Over the years there have been other smart speakers to enter the market such as the Sonos One (£189.00, John Lewis) and the Apple Home Pod (£279, Apple). Not only are these brands premium making them more expensive, when compared to the Echo and Google Assistant they are somewhat limited in functionality and compatibility.

Tablets

When looking at tablets, the market can be broken down into two main competitors; Android vs Apple. Apple's iOS browser continues to lead the market with more than a million iPad specific titles available. Starting at £349 going to a £1000, Apple offers several types of iPads, all of which are compatible to other Apple products, such as Apple Watch and Mac Book.

Android tablets on the other hand offers seamless integration with other Google application such as Google Maps and Gmail. However, android tablets don't have access to Google Play Store, which ultimately limits the apps one can download, thus limiting their use for visually impaired individuals.

Note Takers, assistive tech

Although electronic Note Takers may not be as widely used as screen readers, they are none the less a versatile piece of technology. Equipped with either a standard or braille keyboard, it allows information to be either read out, displayed in braille or both.

Most braille notetakers come equipped with email, internet capabilities and an address book among other features, making them an adaptable piece of technology for either work or leisure. In comparison to screen readers, they are however more expensive and are more limited in the apps and functions they can include.



Appendix 2

Additional disabilities included hearing impairment, cognitive disability and motor disability. The full breakdown is presented in the table below.

Table: WebAim survey responses from screen reader users by disability type

Response	Number of Respondents	Percentage of Respondents
Blindness	930	76.00%
Low Vision/Visually-Impaired	226	18.50%
Cognitive	42	3.30%
Deafness/Hard-of-Hearing	74	6.00%
Motor	24	2.00%
Other	45	3.70%



+ Find Similar **?**

S Search
Search for videos

F Find Similar
Find similar videos

A Favourites
Favourite videos

S Settings
YouTube Settings

Contact sheet – Access to technology – Sector Working group

A table with two columns and ten rows. The first row is a header row

Organisation	Contact
Blind Veterans UK	www.blindveterans.org.uk/ twitter.com/BlindVeterans
Glaucoma UK	www.glaucoma.uk twitter.com/glaucoma_uk
Guide Dogs	www.guidedogs.org.uk twitter.com/guidedogs
Macular Society	www.macularsociety.org twitter.com/MacularSociety
Retina UK	www.retinauk.org.uk/ twitter.com/RetinaUK
RNIB	www.rnib.org.uk/ twitter.com/rnib
Thomas Pocklington Trust	www.pocklington-trust.org.uk/ twitter.com/TPTgeneral
TAVIP	www.tavip.org.uk/
Visionary	www.visionary.org.uk/ twitter.com/visionary_uk